Claims

1. A device for controlling a steering characteristic of a vehicle, the vehicle having a vehicle body, at least one pair of left and right wheels including at least one pair of left and right steered wheels, a steering wheel and a steering apparatus operated based upon a motion of the steering wheel and a control of the device, so as to enhance an effect of suppressing a change in a behavior of the vehicle body due to a difference between driving and braking forces on the left and right wheels, characterized in that the device makes an amount of controlling the steering characteristic smaller as an index indicating an amount of a shift of vertical loads between the left and right wheels is increased .

2. A device according to claim 1, wherein the amount of controlling the steering characteristic is controlled by controlling a steering assist torque.

3. A device according to claim 2, wherein the steering assist torque is controlled in a direction of reducing an effect of a yaw moment imparted on the vehicle body induced by the difference between the driving and braking forces of the left and right wheels.

4. A device according to claim 3, wherein the steering assist torque is controlled based upon a sum of a basic steering assist torque based upon steering torque and an auxiliary steering assist torque produced in a direction of reducing the effect of the yaw moment imparted on the vehicle body induced by the difference between the driving and braking forces of the left and right wheels; and the magnitude of the auxiliary steering assist torque is reduced as the index indicating an amount of a shift of vertical loads between the left and right wheels increases.

5. A device according to claim 1, wherein the amount of controlling the steering characteristic is controlled by controlling a steering angle of a steered wheel.

6. A device according to claim 5, wherein the vehicle has an active steering apparatus steering the steered wheels irrespective of a steering operation of a driver; and, under control of the steering control device, the active steering means steers the steered wheels in a direction of reducing an effect of a yaw moment imparted on the vehicle body induced by the difference between the driving and braking forces of the left and right wheels.

7. A device according to claim 6, wherein the steering control device reduces the magnitude of a control amount of steering of the steered wheel of the active steering apparatus as the index indicating an amount of a shift of vertical loads between the left and right wheels increases.

8. A device according to claim 1, wherein the index indicating an amount of a shift of vertical loads between the left and right wheels is selected from a group of a yaw rate of the vehicle body, a lateral acceleration of the vehicle body, a steering angle, a difference between the vertical loads on the left and right wheels and a combination thereof.

9. A device according to claim 1, wherein, in the vehicle, a traction control is executed in which a braking force of a driven wheel of the wheels is controlled when either of acceleration slips on the driven wheels is excessive; the steering characteristic is controlled so as to enhance an effect of suppressing a change in a behavior of the vehicle due to a difference between driving forces on the left and right wheels; and the difference between the

driving forces on the left and right wheels are estimated based upon a difference between the braking forces on the left and right driven wheels under the traction control for either of the driven wheels.

10. A device according to claim 1, wherein, in the vehicle, an anti-skid control is executed in which a braking pressure of a wheel is controlled when either of braking slips of the wheels is excessive; the steering characteristic is controlled so as to enhance an effect of suppressing a change in a behavior of the vehicle due to a difference between braking forces on the left and right wheels; and the difference between the braking forces on the left and right wheels are estimated based upon a difference between the braking pressures on the left and right wheels under the anti-skid control for either of the wheels.

11. A device according to claim 1, wherein the vehicle has a driving apparatus and at least a front wheel driven by the driving apparatus.

12. A device for controlling a steering characteristic of a vehicle, the vehicle having a vehicle body, at least one pair of left and right wheels including at least one pair of left and right steered wheels, a steering wheel and a steering apparatus operated based upon a motion of the steering wheel and a control of the device, so as to enhance an effect of suppressing a change in a behavior of the vehicle body due to a difference between driving and braking forces on the left and right wheels, characterized in that the device makes an amount of controlling the steering characteristic smaller as an index indicating an amount of a degree of turning of the vehicle is increased .